

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : **BOX PATENT APPLICATION**
Christophe BOYER et al. : Examiner: Unassigned
Serial No.: Unassigned : Group Art Unit: Unassigned
Filed: August 16, 2001 :
For: **DISTRIBUTION DEVICE FOR PRODUCING A POLYPHASE MIXTURE, AND
ASSOCIATED REACTOR**

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, Applicants wish to amend the above-identified application as indicated below:

IN THE ABSTRACT

Please delete the existing abstract and replace with the attached Abstract of the Disclosure.

IN THE CLAIMS

Please cancel claims 2-5 and 8-14 without prejudice or disclaimer.

Please add the following new claims:

— 15. A device according to claim 1, in which the tubes (108) extend below the lower level of the chamber (110) by a distance H_p being in the range of 10 to 50 mm.

16. A device according to claim 1, in which the distance between the level of the tube (108) outlet and an upper surface of a bed located below the device is in the range of 0 to 50 mm.

17. A device according to claim 1, comprising the tubes or conduits in a concentration of more than 80 conduits per m^2 .

18. A device according to claim 1, located upstream of a catalytic bed or at a reactor head.

19. A device according to claim 1, said device being located upstream of a bed of granular solids.

20. A device according to claim 1, further supplied with means for injecting the first fluid into the chamber laterally with respect to said device.

21. A device according to claim 1, located downstream of a bed of granular solids.

22. A reactor comprising a reactor head and at least one device according to claim 1, to mix and distribute two fluids, and further comprising at least one bed of granular solids downstream of said device, and means for introducing the first fluid directly into the chamber (110) for introducing the second fluid introduced upstream of said device.

23. A reactor according to claim 22, comprising a buffer drum located upstream of the reactor head and outside the reactor, connected with the device via lines (12, 13) to allow material exchange between the liquid phase and the gas phase, said lines allowing separate injection into the mixing device of an essentially liquid phase containing dissolved gas and of an essentially gaseous phase containing liquid respectively, said essentially liquid and essential gaseous phases resulting from prior contact of the liquid and gas phases in said buffer drum.

24. A reactor according to claim 22, comprising means for circulating the two fluids in a co-current dropper mode through said bed or beds of granular solids.

25. A process comprising conducting a hydrodesulphurisation, selective hydrogenation or hydrodenitrogenation reaction in a reactor according to claim 22. –

REMARKS

A principal purpose of this Preliminary Amendment is to remove multiply dependent claims, thereby facilitating examination and saving fees, Applicants reserving the right to reintroduce claims to cancelled combined subject matter. New claims 15-18 substantially correspond to cancelled claims 2-5 and new claims 19-25 substantially correspond to cancelled claims 8-14.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version With Markings To Show Changes Made**".

Respectfully submitted,



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ABSTRACT OF THE DISCLOSURE

A device for producing and distributing a polyphase mixture between two fluids comprises a chamber for the passage of a first fluid, said chamber being pierced by perforated tubes or conduits to pass a second fluid in a different physical state than the first fluid or not miscible with the first fluid through the chamber, said tubes being pierced by at least one orifice allowing passage of the first fluid and mixing between the fluids via the tubes. The second fluid is injected upstream of said device and the first fluid is injected into said device.

Version With Markings To Show Changes Made

IN THE ABSTRACT

The abstract has been replaced with the attached Abstract of the Disclosure, therefore no marked-up version is necessary.

IN THE CLAIMS

Claims 2-5 and 8-14 have been cancelled.

Claims 15-25 have been added.